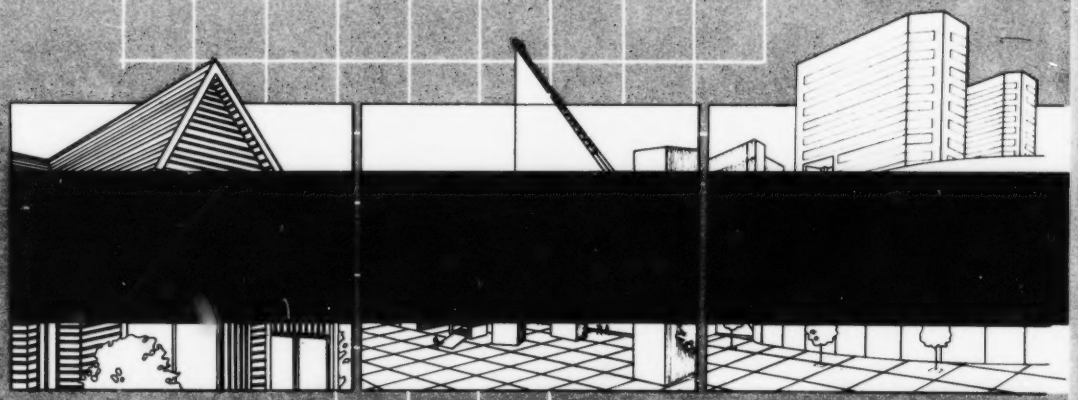
BUILDING TOMORROW

Ontario Building Industry Highlights



Building Industry Strategy Board

Ministry of Industry, Trade and Commerce

ONTARIO
BUILDING INDUSTRY
HIGHLIGHTS

Prepared For

The Building Industry
Strategy Board

By

Clayton Research Associates Ltd.

October, 1986

TABLE OF CONTENTS

	Page
Introduction	1
Building Industry Activity	2
Profiles of Building Industry Participants	12
Impacts of the Building Construction Industry	21
Exports and Imports of Building Products	25
U.S. Building Industry Activity and Exports to the U.S.	30

INTRODUCTION

The Building Industry Strategy Board commissioned Clayton Research Associates Ltd. to prepare this report as part of the background information to be provided at the "Building Tomorrow" Conference held in Toronto November 2-6, 1986.

The report presents highlights of past and expected future trends in the building industry in Ontario and Canada. For the purposes of this report, a broad definition of the building industry has been adopted; it includes not only the building construction industry but also other industries, such as suppliers of building products and services, which are affected by the volume of building activity.

The report is divided into the following five main sections:

1. Building Industry Activity - review of expenditures on residential and non-residential construction activity in Ontario and Canada over the 1971-1985 period and identification of the sectors of the economy which are the main consumers of construction activity.

2. Profiles of Building Industry Participants - review of the characteristics of firms in the building construction industry, the building products manufacturing industry, architectural and engineering firms and the construction labour force.

3. Impacts of the Building Construction Industry - identification of the impacts of residential and non-residential building construction activity on employment, income and imports from other provinces.

4. Exports and Imports of Building Products - review of the volumes of international trade (exports and imports) in building products for Ontario and Canada.

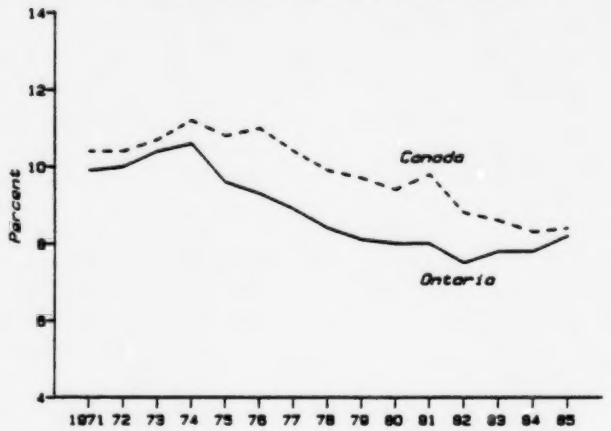
5. U.S. Building Industry Activity and Exports to the U.S. - review of the volume of building construction expenditures in the U.S., Ontario's major export market for building products, and trends in exports to the U.S.

The information presented in the report has been updated from that presented in a previous report for the Building Industry Strategy Board in April, 1986. Published and unpublished Statistics Canada data are the main source of the information and major revisions have been made to much of the data since the preparation of the earlier report - for example, the estimate for total building construction expenditures in Ontario in 1985 was revised upwards by Statistics Canada from $12.9 billion to $15.2 billion.

BUILDING INDUSTRY ACTIVITY

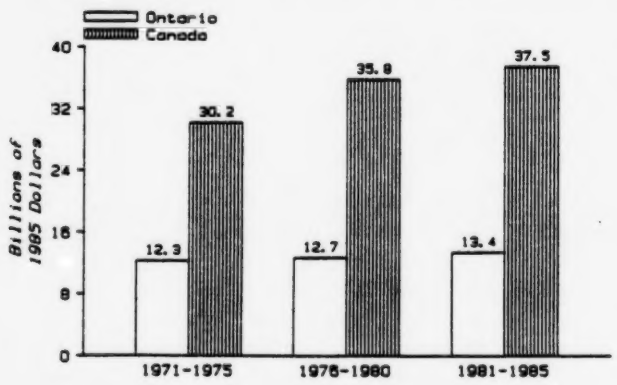
Building Construction Becoming Less Important to the Economy

BUILDING CONSTRUCTION EXPENDITURES
AS PERCENT OF GDP
ONTARIO AND CANADA, 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

AVERAGE ANNUAL REAL BUILDING CONSTRUCTION
EXPENDITURES, ONTARIO AND CANADA, 1971-1985

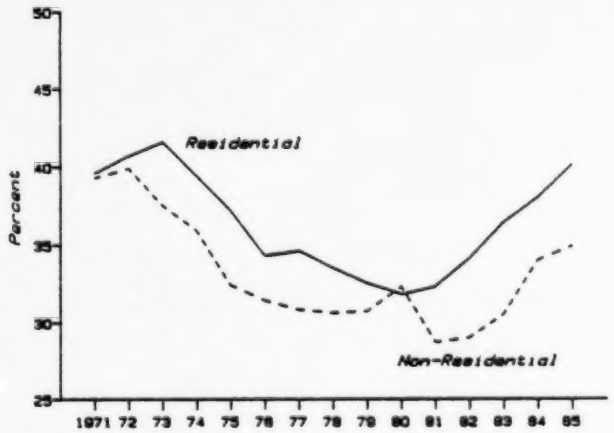


Source: Clayton Research Associates based on Statistics Canada data.

- Expenditures on building construction in Ontario over the first half of the 1980s accounted for a much smaller share of gross domestic product (GDP) than in the 1970s.
- As a percent of GDP, expenditures on building construction in Ontario have declined from an average of 10.1 percent over the 1971-1975 period to 8.5 percent in 1976-1980 and to 7.9 percent over the past five years.
- The recession year of 1982 saw building construction expenditures account for only 7.5 percent of GDP in Ontario. In 1985, they recovered to an estimated 8.2 percent.
- The trend in Canada is similar, though building construction accounts for a larger share of GDP for Canada than is the case for Ontario.
- The declining importance of building construction results from a relatively slow rate of growth in real spending on building compared with real economic growth. Spending on building in Ontario in 1981-1985 averaged $13.4 billion (1985 dollars), - about 5 percent above 1976-1980. Real economic growth in the province in this period was about twice this figure.

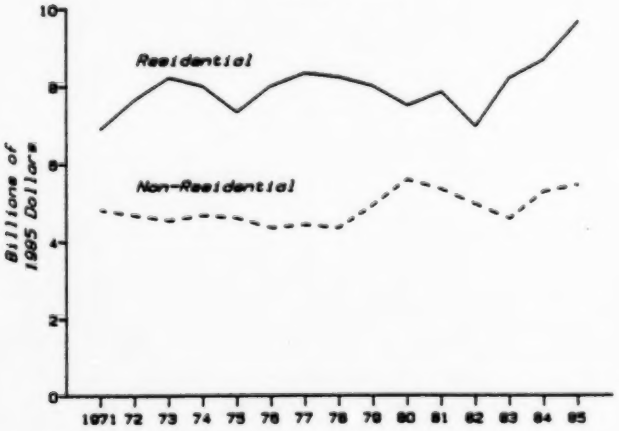
Recovery in Building Construction Activity Stronger in Ontario Than Nationally

RESIDENTIAL AND NON-RESIDENTIAL BUILDING EXPENDITURES, ONTARIO AS PERCENT OF CANADA 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

REAL BUILDING CONSTRUCTION EXPENDITURES BY TYPE OF WORK, ONTARIO 1971-1985

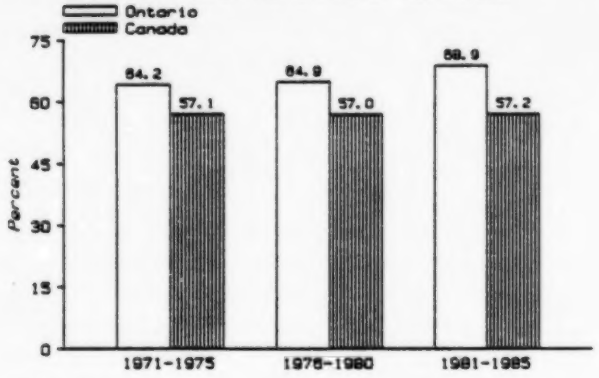


Source: Clayton Research Associates based on Statistics Canada data.

- Spending on building construction totalled $15.2 billion in Ontario in 1985 - a significant increase over the earlier years of the decade. Building expenditures totalled only $11.9 billion (in 1985 dollars) in 1982.
- Residential construction expenditures in Ontario in 1985 totalled $9.7 billion (including both new and repair work). This is the highest real level ever.
- Non-residential building activity has also recovered since 1983. However, while real spending is higher than during most of the 1970s, it is still lower than in 1980 - the peak year.
- The recovery in building activity in Ontario has been stronger than in other parts of Canada. Ontario's shares of both residential and non-residential building expenditures in Canada have increased significantly in the past three years.
- To some extent, the rise in Ontario's share of building construction work in Canada is due to the decline in activity in western Canada since 1981.
- These figures were revised by Statistics Canada in July, 1986 - estimated total 1985 spending on building in Ontario was revised from $12.9 billion to $15.2 billion.

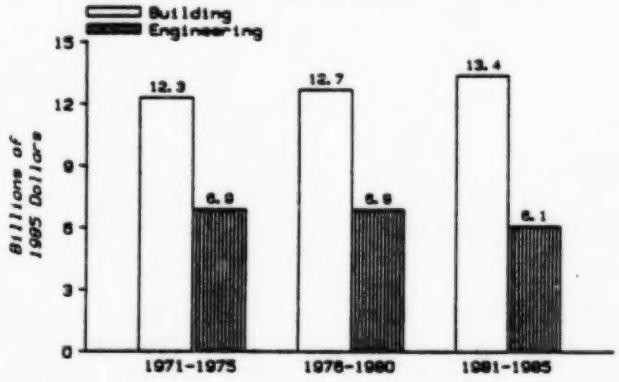
Building Construction Accounts for Larger Share of Total Construction in Ontario Than in Canada

BUILDING CONSTRUCTION EXPENDITURES AS PERCENT OF TOTAL CONSTRUCTION EXPENDITURES ONTARIO AND CANADA, 1971-1985



Source: *Clayton Research Associates based on Statistics Canada data.*

AVERAGE ANNUAL REAL BUILDING AND ENGINEERING CONSTRUCTION EXPENDITURES, ONTARIO 1971-1985



Source: *Clayton Research Associates based on Statistics Canada data.*

- Building work accounts for over two-thirds of total construction expenditures in Ontario, a much larger proportion than for other parts of Canada. For the country as a whole, building accounts for less than 60 percent of total construction work.

- Engineering has accounted for a larger share of total construction in western Canada due to work in the energy and mining sectors.

- There has been little change in the building and engineering shares of total construction spending in the past 15 years.

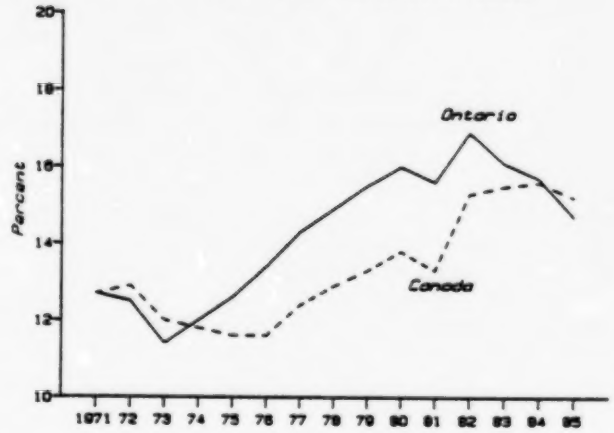
- Average annual real expenditures have increased progressively for building construction in Ontario over the 1971-1985 period. Expenditures on engineering work declined in the 1981-1985 period compared to the 1970s.

- To some extent, average annual real building expenditures in the past five years were depressed due to the effects of the recession. Spending on building construction in Ontario in 1985 was $15.2 billion - well above the five-year average.

- Real spending on engineering construction peaked in 1975 at $7.6 billion (1985 dollars). In 1985, spending amounted to only $5.4 billion.

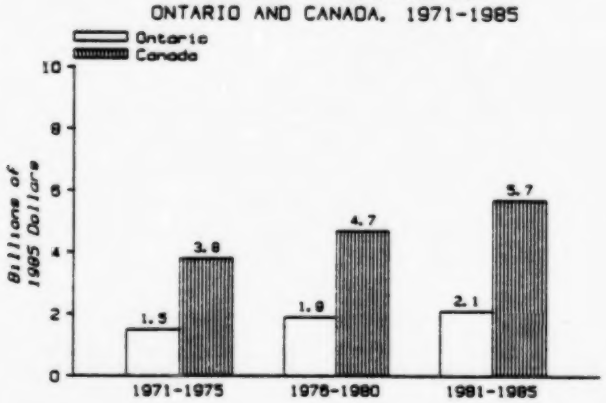
Repairs Accounting for a Greater Share of Total Building Construction Work

REPAIR EXPENDITURES AS PERCENT OF TOTAL BUILDING CONSTRUCTION EXPENDITURES ONTARIO AND CANADA, 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

AVERAGE ANNUAL REAL REPAIR EXPENDITURES ON BUILDING CONSTRUCTION ONTARIO AND CANADA, 1971-1985

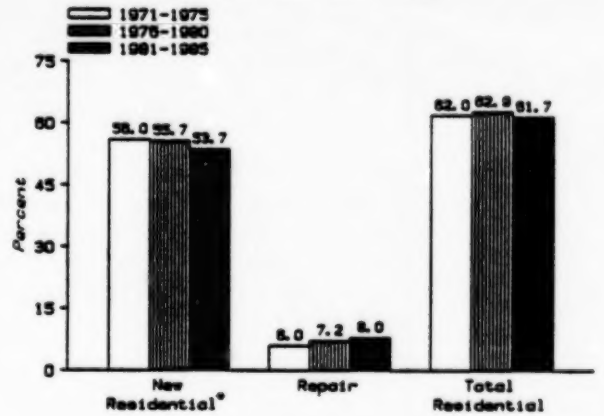


Source: Clayton Research Associates based on Statistics Canada data.

- Over the 1981-1985 period, repairs accounted for 15.7 percent of total building construction expenditures in Ontario. This compares with a 12.2 percent share in the 1971-1975 period.
- Repair work accounts for a larger proportion of total building construction expenditures in Ontario than is the case in most other regions.
- Due to strong growth in the economy, the decline in the share of new building expenditures has reversed in Ontario in the period since the recession. This reversal is not as apparent for Canada as a whole and is unlikely to continue indefinitely.
- Repairs' rising share of building work results from relatively stable real expenditures on new work (on an average annual basis) and an increase in real expenditures on repairs.
- Spending on new work in Ontario increased slightly from an average of $10.8 billion annually (in 1985 dollars) in 1971-1975 to $11.3 billion annually in 1981-1985. During the same period, average expenditures on repairs increased from $1.5 billion annually in the first half of the 1970s to $2.1 billion in the last five years.

Relatively Stable Residential Share of Total Building - Decline in Share of New Work

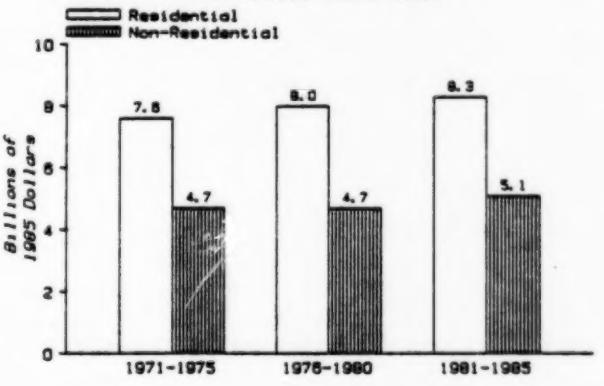
RESIDENTIAL BUILDING EXPENDITURES AS PERCENT OF TOTAL BUILDING CONSTRUCTION EXPENDITURES ONTARIO, 1971-1985



* *Includes improvements to existing dwellings.*

Source: Clayton Research Associates based on Statistics Canada data.

AVERAGE ANNUAL REAL BUILDING CONSTRUCTION EXPENDITURES BY TYPE OF WORK ONTARIO, 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

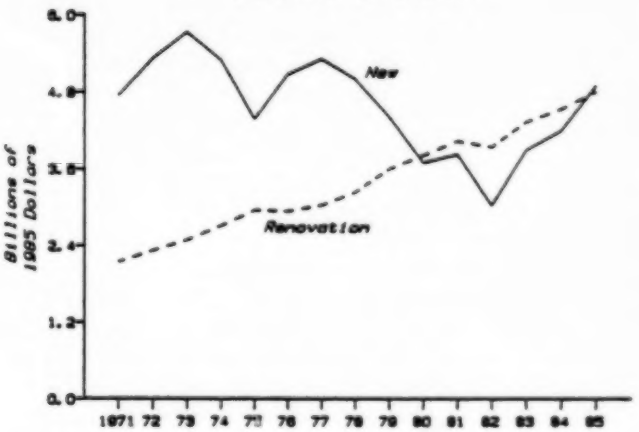
- Residential building work accounts for more than half of all Ontario building work. On an average annual basis, its share has been relatively stable around 62 percent for the past 15 years - due to increased spending on residential repairs.
- The share of total building expenditures accounted for by new residential work has dropped slightly, on an average annual basis, from 56.0 percent in 1971-1975 to 53.7 percent in 1981-1985.*
- Repair work on residential buildings has taken up the slack - spending on residential repairs has increased from 6.0 percent of all building expenditures in 1971-1975 to 8.0 percent in 1981-1985.
- In 1985 dollars, spending on residential building has increased from an annual average of $7.6 billion in the 1971-1975 period to $8.3 billion in 1981-1985. Spending on non-residential building work rose from an average of $4.7 billion (in 1985 dollars) in the 1970s to $5.1 billion in 1981-1985.

---

* Statistics Canada defines new construction work to include improvements to existing buildings, therefore, much of what would generally be considered to be renovation work is included in new work in these statistics.

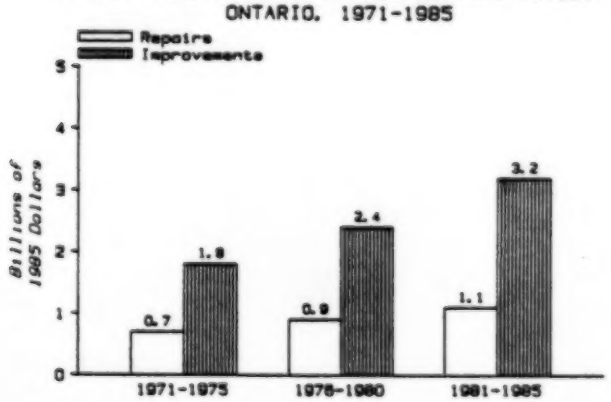
Residential Renovation Spending Increasing - Spending on New Work Has Declined

REAL RESIDENTIAL CONSTRUCTION EXPENDITURES
ON NEW AND RENOVATION WORK
ONTARIO, 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

AVERAGE ANNUAL REAL REPAIR AND IMPROVEMENT
EXPENDITURES ON EXISTING RESIDENTIAL BUILDINGS
ONTARIO, 1971-1985

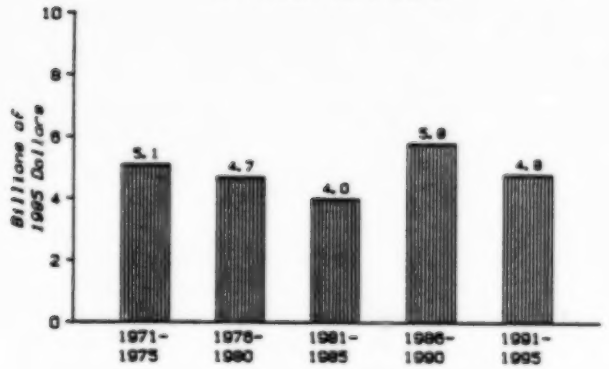


Source: Clayton Research Associates based on Statistics Canada data.

- Spending on residential renovations has increased significantly since 1971. Renovation expenditures totalled $4.8 billion in Ontario in 1985 - almost double the average annual renovation expenditures of $2.5 billion in 1971-1975 (in 1985 dollars).
- As defined here, renovations include both improvements to existing dwellings (normally included with work on new dwellings in the published Statistics Canada data) and repairs.
- Spending on new dwellings dropped significantly in the late 1970s and early 1980s but has recovered in the period since 1982. Renovation spending has increased steadily during the past 15 years with the exception of 1982.
- Major revisions to the data on renovations were made by Statistics Canada in July, 1986. These revisions resulted in a significant increase in the estimated volume of renovation activity.
- Spending on improvements has been the main factor behind the growth in renovation spending. Average annual Ontario residential improvement expenditures were $3.2 billion in 1981-1985 (1985 dollars) - up from $1.8 billion in 1971-1975. Growth in repair spending was less rapid, though still significant.

Recovery in New Residential Building Work in 1986-1990 - Decline in New Work in 1990s Offset by Renovations

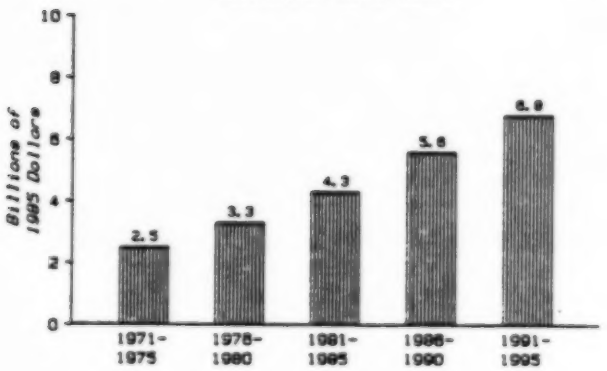
AVERAGE ANNUAL REAL RESIDENTIAL CONSTRUCTION EXPENDITURES ON NEW WORK ONTARIO, 1971-1995*



* Excludes improvements to existing dwellings.

Source: Clayton Research Associates.

AVERAGE ANNUAL REAL RESIDENTIAL CONSTRUCTION EXPENDITURES ON RENOVATION WORK ONTARIO, 1971-1995



Source: Clayton Research Associates.

- Expenditures on new residential building work have increased significantly since the recession. This is expected to result in a substantially higher level of average annual expenditures in the 1986-1990 period than was the case in the first half of the decade.

- New residential building expenditures in Ontario are projected to average $5.8 billion annually (in 1985 dollars) in the 1986-1990 period, well above the annual average of $4.0 billion in the preceding five-year period.

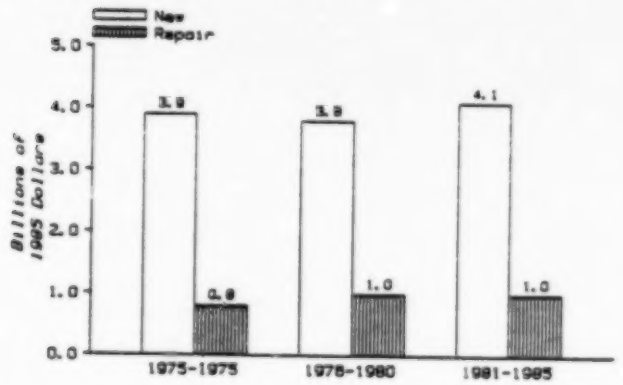
- In the 1990s, spending on new residential building is expected to decline to an average of $4.8 billion annually (1985 dollars).

- Spending on renovations to residential buildings is projected to continue to increase during the next decade.

- In the early 1990s, the increase in renovation spending is expected to be sufficiently large to offset the projected decline in new residential building so that total spending on residential building will be about the same on average in 1991-1995 as in 1986-1990.

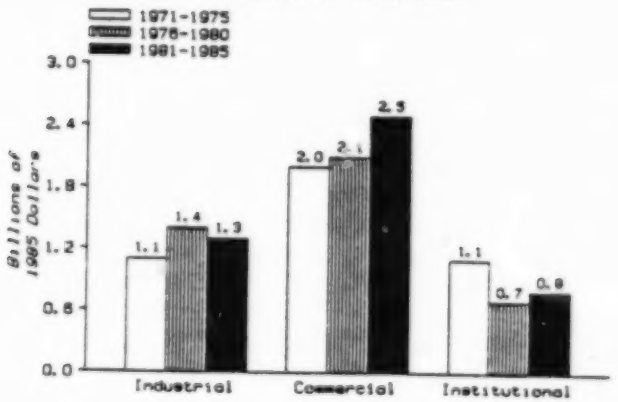
Commercial Buildings - The Reason for Strength in New Non-Residential Building

AVERAGE ANNUAL REAL NON-RESIDENTIAL BUILDING EXPENDITURES, ONTARIO, 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

AVERAGE ANNUAL REAL NON-RESIDENTIAL BUILDING EXPENDITURES BY TYPE OF BUILDING* ONTARIO, 1971-1985



* Expenditures on other non-residential buildings are not shown here.

Source: Clayton Research Associates based on Statistics Canada data.

- There has been a modest rise in real spending on new non-residential building in Ontario over the 1971-1985 period. Average annual spending increased to $4.1 billion (in 1985 dollars) in the 1981-1985 period, up somewhat from the level of the 1970s.

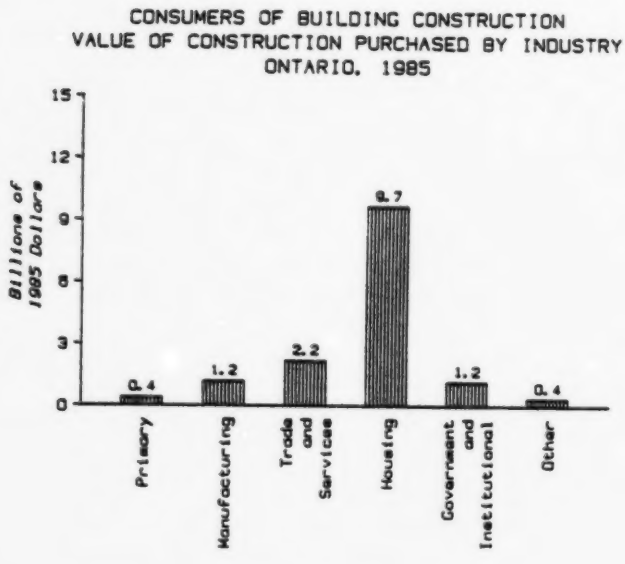
- The increase in new non-residential building expenditures has been even more pronounced since 1983. Spending in 1985 totalled $4.4 billion compared to $3.6 billion (1985 dollars) in 1983.

- Annual expenditures on repairs to non-residential buildings increased during the 1970s but fell sharply during the recession. By 1985, they had recovered to $1.1 billion.

- The source of the strength in non-residential building in Ontario has been spending on new commercial buildings which averaged $2.5 billion (1985 dollars) over the 1981-1985 period. In 1985, the strong spending on commercial building continued with expenditures of $2.7 billion.

- Spending on industrial building fell sharply during the recession and, at $1.4 billion in 1985, still has not reached the peak pre-recession levels of $1.7 billion (1985 dollars) in 1980 and 1981.

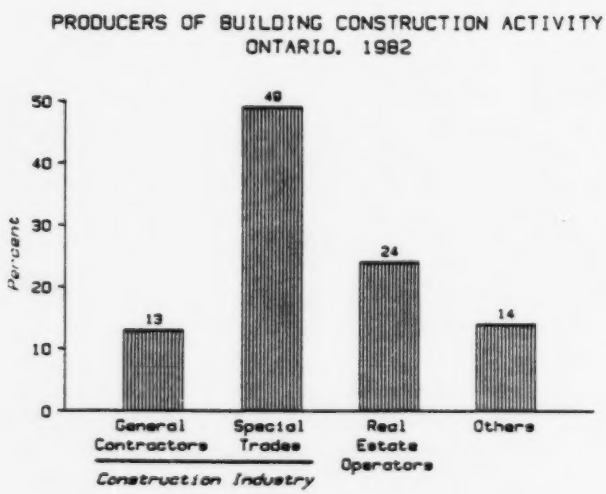
Housing - Biggest Consumer of Building Construction; Trade and Services Next Most Important



Source: Statistics Canada.

- As noted previously, residential construction comprises more than half of all building construction work in Ontario. In 1985, housing accounted for 63.9 percent of building work.
- Disaggregating non-residential work by industry provides insights as to the sectors which stimulate building work. The trade and service sectors together accounted for 14.4 percent of total building spending (and 39.9 percent of non-residential spending). Manufacturing and government/ institutions each accounted for about 8 percent of total building.

Special Trades Contractors Account for Almost Half of Total Construction Output

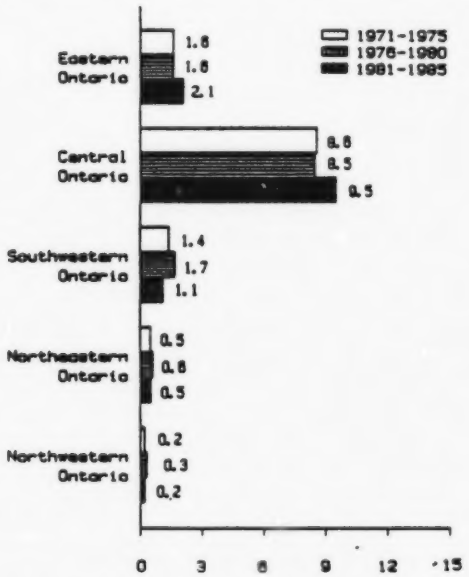


Source: Clayton Research Associates based on Statistics Canada data.

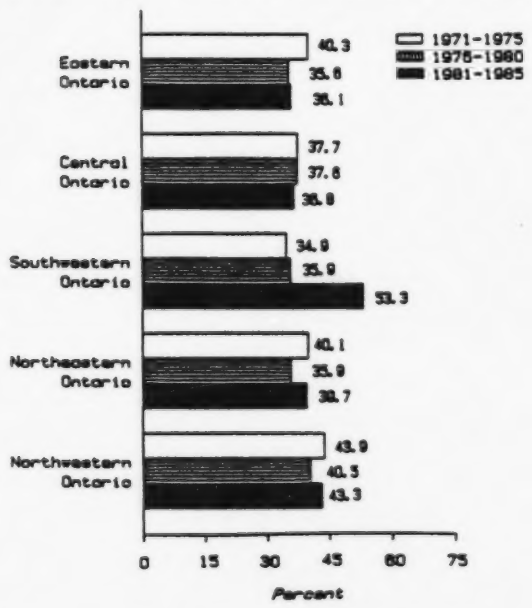
- The importance of special trades contractors to building construction is evidenced by the fact that they accounted for almost half of Ontario's building output in 1982 (the latest year for which information is available).
- Real estate operators (including developers) accounted for almost one-quarter and general contractors a further 13 percent of total building construction.
- The "others" category is comprised mainly of homeowners undertaking work on their own dwellings.

Central Region Dominates Building Construction in Ontario

AVERAGE ANNUAL BUILDING CONSTRUCTION EXPENDITURES BY REGION, ONTARIO, 1971-1985



AVERAGE ANNUAL NON-RESIDENTIAL BUILDING CONSTRUCTION EXPENDITURES AS PERCENT OF TOTAL BUILDING EXPENDITURES BY REGION, ONTARIO, 1971-1985



Source: Clayton Research Associates based on Statistics Canada data.

- Central Ontario, including the major centres of Toronto, Hamilton, Oshawa and Kitchener, accounts for most of building activity in the province. The region accounted for over 70 percent of total building expenditures in Ontario during 1981-1985, up slightly from the estimated two-thirds share in 1976-1980 and about the same share as in the early 1970s.

- Eastern Ontario accounts for the next largest share, about 16 percent in 1981-1985 (up from 13 percent in the 1970s). Southwestern Ontario accounted for only about 8 percent in 1981-1985, down from 11-13 percent in the 1970s.

- Northern Ontario has accounted for only 5-8 percent of provincial building activity over the past 15 years.

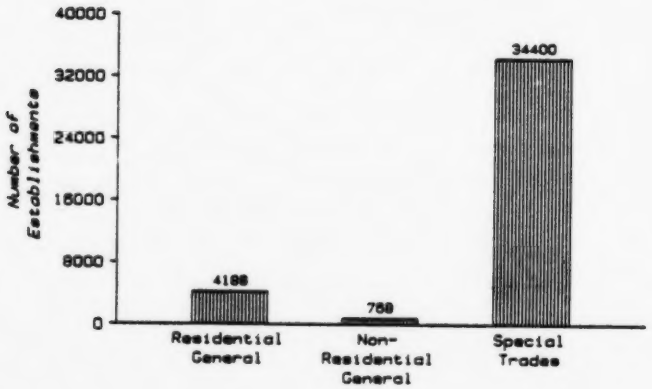
- In most regions, non-residential building accounted for approximately the same share of total building construction expenditures in the last five years as during the 1970s. The exception is Southwestern Ontario where non-residential building expenditures accounted for 53.3 percent of total expenditures in 1981-1985, compared to about 35 percent in the 1970s. This may be due to the decline in new house building in the region during the recession.

PROFILES OF BUILDING INDUSTRY PARTICIPANTS

This section reviews some of the characteristics of participants in the building industry - defined here to include not only building construction firms and their workers, but also other industries which provide necessary inputs to construction.

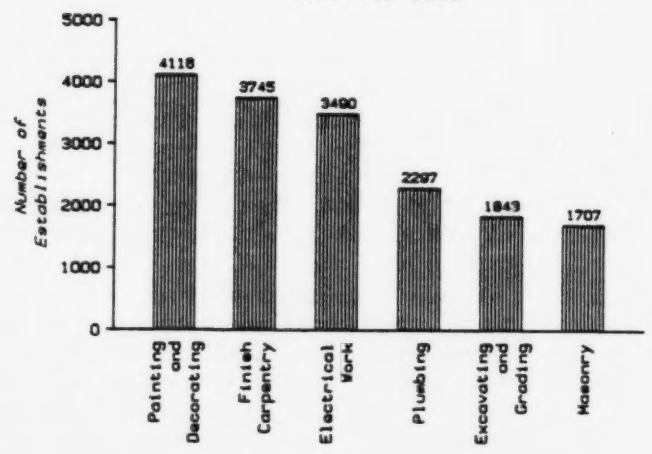
Special Trades Contractors Dominate Building Contracting Industry

NUMBER OF BUILDING CONSTRUCTION FIRMS
ONTARIO, 1983



Source: Statistics Canada.

NUMBER OF SPECIAL TRADES CONTRACTORS
BY TYPE OF TRADE
ONTARIO, 1983



Source: Statistics Canada.

- Special trades contractors comprise almost 90 percent of all building contracting firms in Ontario. In 1983, the latest year for which data are available, residential and non-residential general building contractors accounted for only 10.6 percent and 2.0 percent, respectively, of all building contractors.

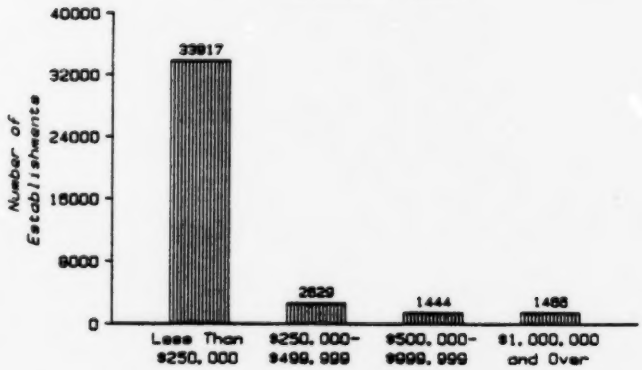
- The special trades contractors comprise a large variety of specialties ranging from painting and decorating (12.0 percent of all special trades contractors in the province in 1983) to pile driving (only 8 firms).

- The six most numerous types of special trades contractors in Ontario in 1983 specialized in painting and decorating, finish carpentry, electrical work, plumbing, excavating and grading and masonry. Together, firms in these six trades comprised half of all special trades contractors in the province.

- Statistics Canada identifies a further 36 types of special trades contractors in Ontario.

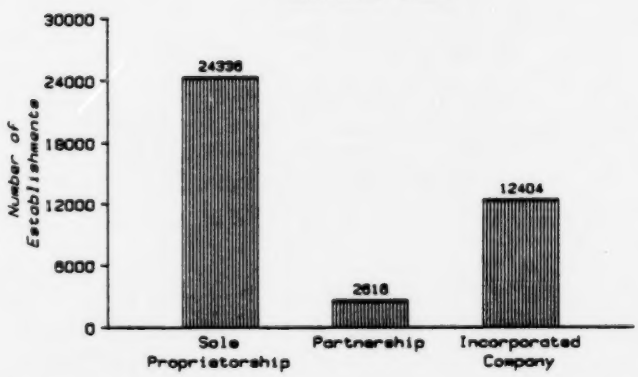
Contractors Mostly Small Sole Proprietorship Firms

NUMBER OF BUILDING CONSTRUCTION FIRMS
BY SIZE OF OUTPUT
ONTARIO, 1983



Source: Statistics Canada.

NUMBER OF BUILDING CONSTRUCTION FIRMS
BY LEGAL ENTITY
ONTARIO, 1983

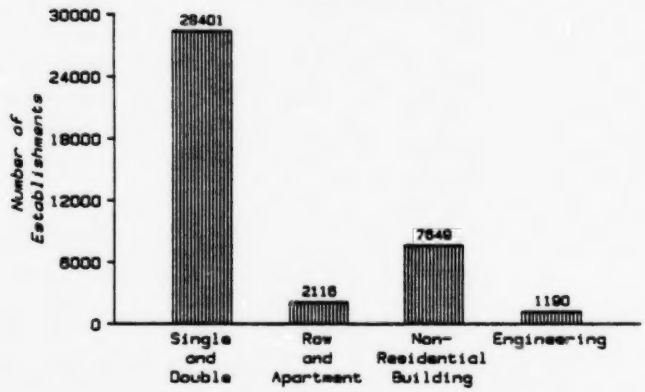


Source: Statistics Canada.

- Most contracting firms are very small operations - only 3.7 percent of general and special trade contracting firms had construction output (operating revenue less payments to sub-contractors) of $1 million or more in 1983. About 86 percent had 1983 output of less than $250,000.
- More than half of the special trades contractors had 1983 construction output below $50,000.
- Non-residential general building contractors tend to be larger: 36.4 percent had output of $1 million or more in 1983 and 4.3 percent were above $10 million.
- Almost 77 percent of residential general contractors had 1983 output of less than $250,000.
- The predominance of small firms in the contracting industry is further illustrated by the fact that 61.8 percent of the contracting firms in Ontario in 1983 were sole proprietorships; a further 6.6 percent were partnerships.
- There is a high proportion of incorporated companies among general contractors: 92.2 percent and 47.4 percent for non-residential and residential general building contractors, respectively, versus 28.2 percent for special trades contractors.

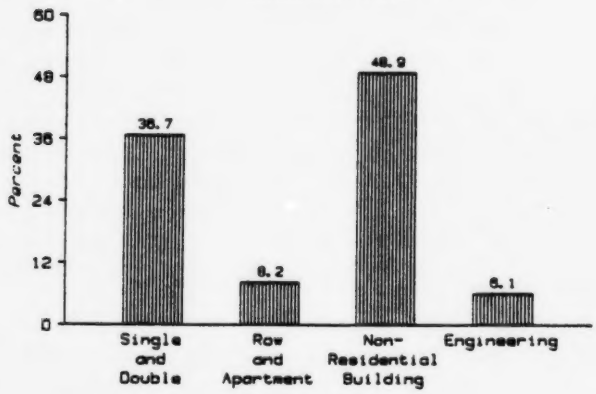
Smaller Firms Concentrate on Residential Building, Fewer But Larger Firms Build Non-Residential

NUMBER OF BUILDING CONSTRUCTION FIRMS
BY PRINCIPAL TYPE OF CONSTRUCTION
ONTARIO, 1983



Source: Statistics Canada.

OUTPUT OF BUILDING CONSTRUCTION FIRMS
BY PRINCIPAL TYPE OF CONSTRUCTION
ONTARIO, 1983



Source: Clayton Research Associates based on Statistics Canada data.

- Almost 80 percent of all contractors in Ontario in 1983 (30,517 firms) indicated that residential building was their principal type of work. Most of these firms built single and double dwellings.

- While the vast majority of contracting firms undertake mostly residential work, less than half the total output of all contracting firms in Ontario in 1983 was comprised of residential building.

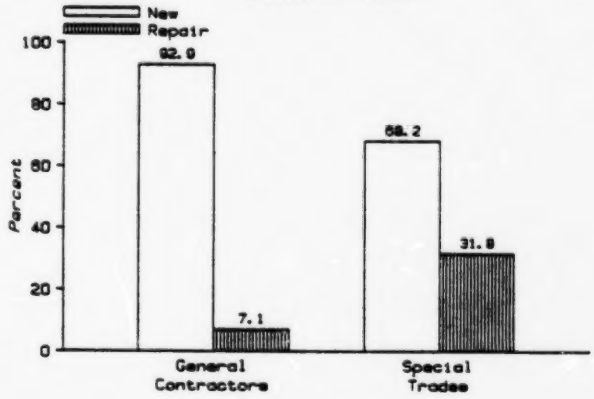
- The minority of building contracting firms which undertake principally non-residential work are much larger than the average contractor. These firms accounted for 19.4 percent of all contractors (7,649 firms), yet the non-residential share of total 1983 output of contractors was 48.9 percent.

- Engineering was the principal type of construction work for only 3.0 percent of contractors (all were special trades contractors).

- In assessing these data, it must be recognized that contractors do not undertake all building work. As indicated on page 10, contractors accounted for only 62 percent of all building construction in Ontario in 1982. The remainder was undertaken by real estate operators and others (including homeowners).

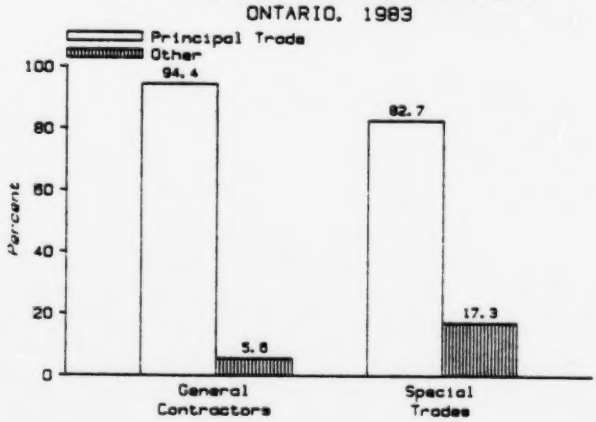
Most Contractors Undertake New Work and Concentrate on Their Specialty

OUTPUT OF BUILDING CONSTRUCTION FIRMS
BY TYPE OF WORK
ONTARIO, 1983



Source: Clayton Research Associates based on Statistics Canada data.

OUTPUT OF BUILDING CONSTRUCTION FIRMS
BY TYPE OF TRADE/SPECIALIZATION
ONTARIO, 1983

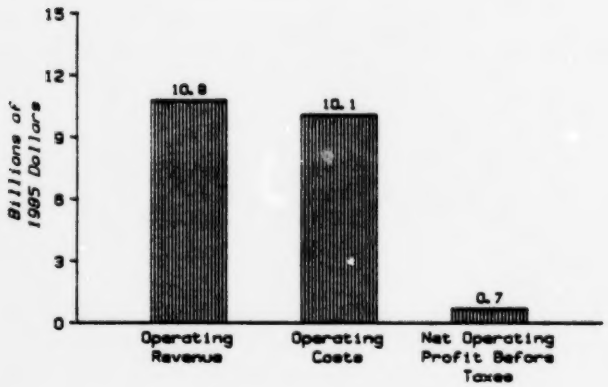


Source: Clayton Research Associates based on Statistics Canada data.

- New work accounted for 92.9 percent of the output of general building contractors in Ontario in 1983 and 68.2 percent of the output of special trades contractors.
- New work includes not only work on new dwellings, but also improvements to existing dwellings.
- A few types of special trades contractors had a higher proportion of repair work: firms specializing in painting and decorating, sheet metal and built-up roofing and elevators all undertook more repair work in 1983 than new work. Other special trades with between 45 and 50 percent of their 1983 output comprised of repair work were siding, dry heating and roofing contractors.
- Most contractors concentrate on their trade specialty. Less than 6 percent of the output of general contractors in 1983 was non-construction work. No information is available on the share of the output of general contractors that is comprised of the types of work typically undertaken by special trades.
- For special trades contractors, the proportion of their total 1983 output which was comprised of the firms' special trade was 82.7 percent.

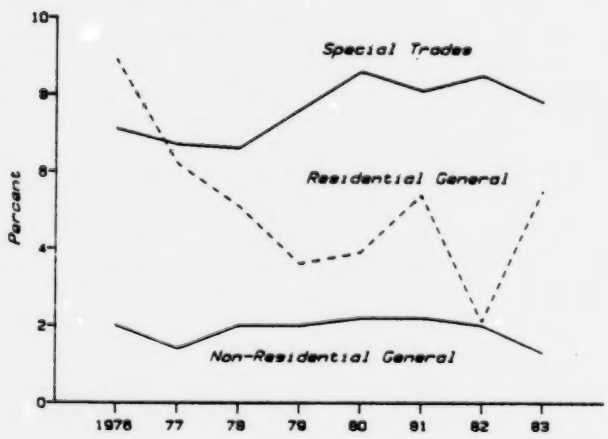
Considerable Variations in Profit Margins of Building Construction Firms

FINANCIAL DATA OF BUILDING CONSTRUCTION FIRMS
ONTARIO, 1983



Source: Statistics Canada.

PROFIT MARGINS OF BUILDING CONSTRUCTION FIRMS
ONTARIO, 1976-1983



Source: Clayton Research Associates based on Statistics Canada data.

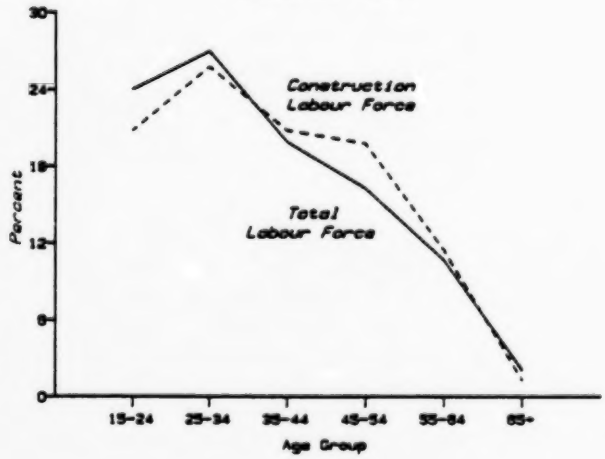
- Generally, 1983 was a relatively normal year in terms of profit margins for building contractors in Ontario. Operating revenues exceeded operating costs by 6.2 percent (before taxes) for all contractors taken together. This was about average for the 1976-1983 period.

- Examining the profit margins by type of contractor presents a different picture. There was a significant recovery in profit margins among residential general contractors following a very tough 1982, while non-residential general building contractors experienced a downturn in profit margins in 1983.

- The relatively high profit margins enjoyed by the special trades contractors are probably illusory. The special trades contractors are characterised by a large number of one and two person operations where the wages of the owners are likely not considered as costs in the same sense they would be in larger operations. Thus, apparent profits for these firms often include the wages of the person doing the work - the owner.

Little Difference in Ages of Construction and Total Labour Force

PERCENT DISTRIBUTION OF CONSTRUCTION AND TOTAL LABOUR FORCE BY AGE GROUP ONTARIO, 1981

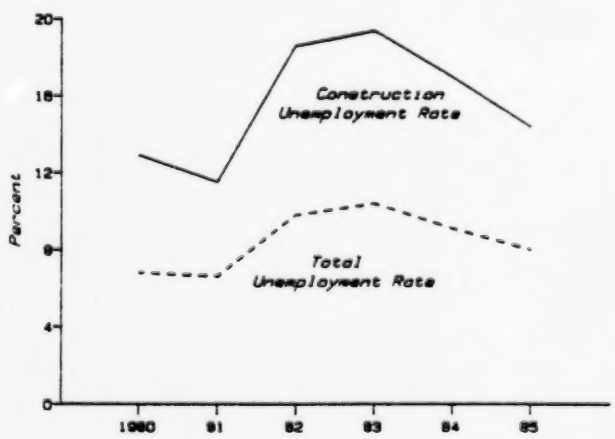


Source: Clayton Research Associates based on data from 1981 Census of Canada.

- There is not much difference in the age structure of the total labour force and the construction labour force in Ontario. In 1981, the construction labour force had fewer workers aged 15-34 and more aged 45-54 than the total labour force.
- The median age for male construction workers in Ontario in 1981 was 36.7 years. Foremen and inspectors had higher median ages (41-43) as did masons and concrete finishers.
- Only 2.0 percent of the 1981 Ontario construction labour force was comprised of females.

Higher Unemployment in Construction

CONSTRUCTION AND TOTAL UNEMPLOYMENT RATES ONTARIO, 1980-1985

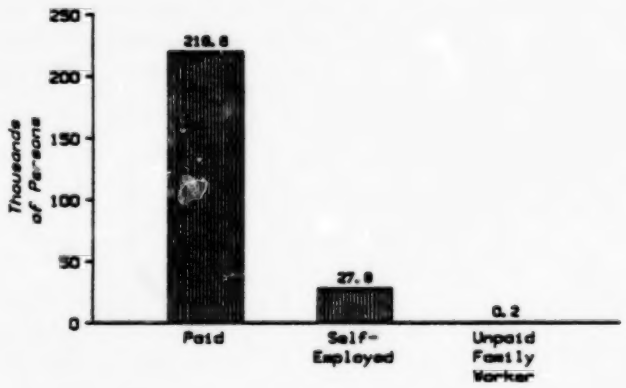


Source: Statistics Canada.

- The construction industry suffers from chronically higher unemployment compared to the rest of the economy. In 1983, unemployment in Ontario's construction industry averaged 19.4 percent, well above the total unemployment rate of 10.4 percent.
- Since the recession, the unemployment rate in the construction industry has dropped to an average of 14.4 percent in 1985.
- In August, 1986, the unemployment rate among construction workers was 8.4 percent. This is about the same as in August, 1985.

Construction Workers Mostly Paid Employees

CONSTRUCTION LABOUR FORCE BY CLASS OF WORKER
ONTARIO, 1981

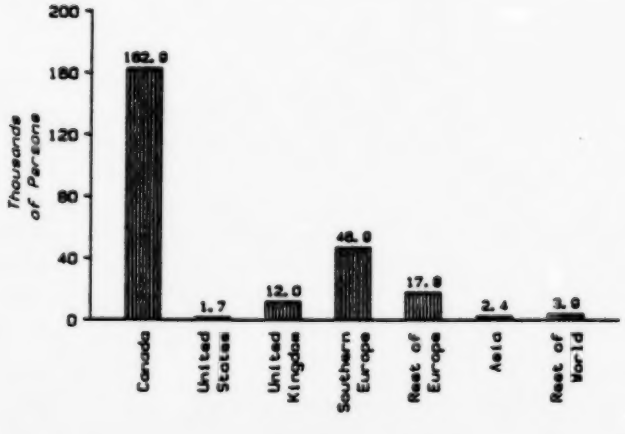


Source: 1981 Census of Canada.

- Only 11.2 percent of the construction labour force in Ontario in 1981 was self-employed.
- This information is available by detailed trade for the male labour force only. Trades with a higher than average proportion of self-employed workers (males) in Ontario in 1981 included painters (24.5 percent) and carpenters (16.8 percent).
- Many male workers describing themselves as self-employed were classified in the Census as foremen. They accounted for almost 30 percent of the self-employed male workers but only 3.4 percent of all male workers.

Canadian-Born Workers Dominate Construction Labour Force

CONSTRUCTION LABOUR FORCE BY PLACE OF BIRTH
ONTARIO, 1981

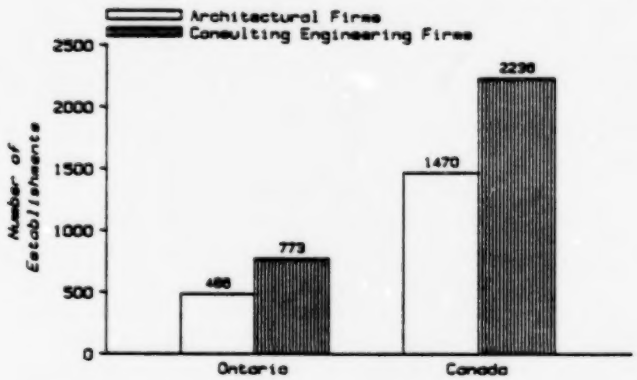


Source: 1981 Census of Canada.

- Contrary to some popular beliefs, most of Ontario's construction workers were born in Canada.
- Almost two-thirds of the province's 1981 construction labour force was born in Canada. The next largest place of birth for these workers was southern Europe (19 percent).
- Information on the birthplaces of selected trades is not published for Ontario. For Canada, brick and stone masons had the highest proportion of non-Canadian born male workers at 43.7 percent.

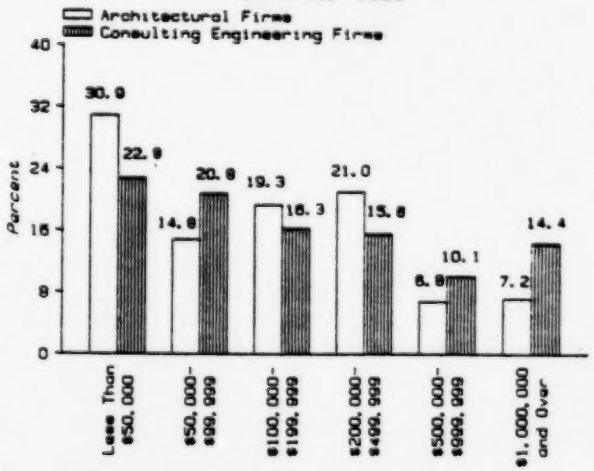
One-Third of Canada's Architectural and Engineering Consulting Firms Located in Ontario

NUMBER OF ARCHITECTURAL AND CONSULTING ENGINEERING FIRMS, ONTARIO AND CANADA, 1982



Source: Statistics Canada.

ARCHITECTURAL AND CONSULTING ENGINEERING FIRMS BY FEE INCOME RANGE ONTARIO, 1982

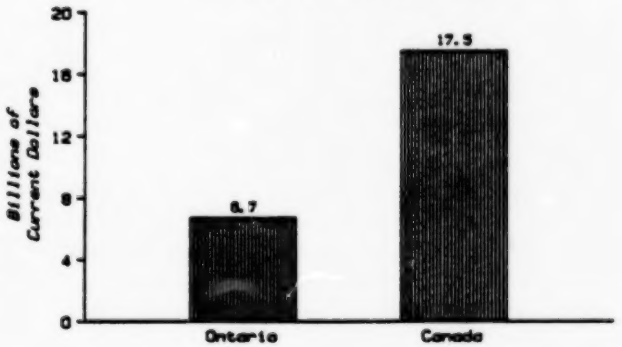


Source: Statistics Canada.

- Ontario accounted for about one-third of all Canadian architectural and consulting engineering firms in 1982, the latest year for which data are available.
- In addition, Ontario's architectural and consulting engineering firms accounted for approximately one-third of total fee income of these firms in Canada in 1982.
- Total fee income for architectural and consulting engineering firms in Ontario in 1982 was $175 million and $767 million, respectively.
- Most fees from work by the province's architectural and consulting engineering firms relate to projects in Canada - 95 percent for architects and 90 percent for engineers in 1982.
- Fee income resulting from Canadian building projects accounted for only 15 percent of total fee income for Ontario consulting engineering firms in 1982. The remainder was mainly engineering work.
- Consulting engineering firms tend to be larger than architectural firms. About 14 percent of Ontario's consulting engineering firms had fee income of $1 million or more in 1982. Only 7 percent of architectural firms had $1 million or more in fee income that year.

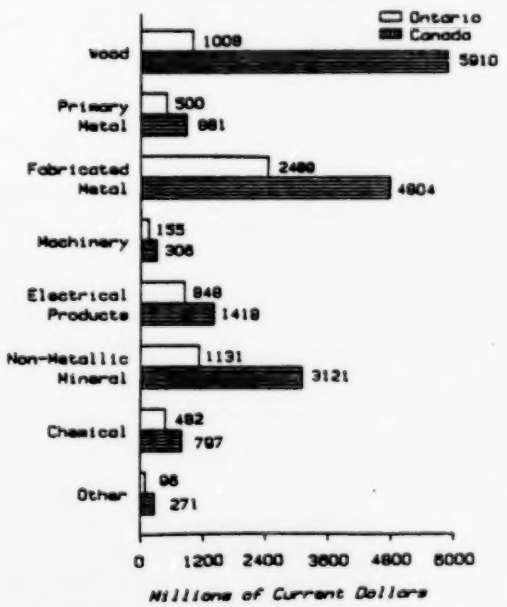
Ontario Manufacturers' Shipments of Building Products Totalled $6.7 Billion in 1982

ESTIMATED VALUE OF SHIPMENTS
OF BUILDING PRODUCTS
ONTARIO AND CANADA, 1982



Source: *Clayton Research Associates based on Statistics Canada data.*

ESTIMATED VALUE OF SHIPMENTS OF BUILDING
PRODUCTS BY TYPE OF MANUFACTURER
ONTARIO AND CANADA, 1982



Source: *Clayton Research Associates based on Statistics Canada data.*

- Manufacturers in Ontario shipped an estimated $6.7 billion worth of building products in 1982. This is slightly more than one-third of the estimated total shipments of building products in Canada.

- Since 1982 was a recession year and building activity was at a low level, shipments since 1982 have likely been significantly higher. Similar estimates prepared for 1979 indicate Ontario shipments of $6.2 billion and Canadian shipments of $17.6 billion (in current dollars).

- Estimates for 1982 are the latest for which data comparable to earlier years are available from Statistics Canada.

- The composition of building product shipments by type of product illustrates the specialization of Ontario's manufacturing industries. Wood products comprise one-third of Canada's shipments of building products, but only 15 percent of Ontario's shipments.

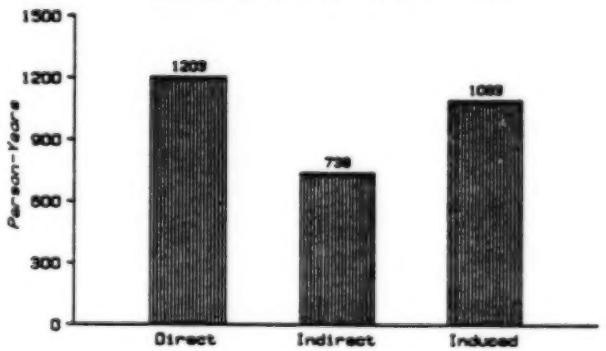
- Ontario accounts for a relatively high proportion of Canada's building product shipments of both primary and fabricated metal products, machinery, electrical products, non-metallic mineral products as well as chemical products.

IMPACTS OF THE BUILDING CONSTRUCTION INDUSTRY

This section reviews the employment and income impacts which construction work generates both in the construction industry itself and throughout the economy.

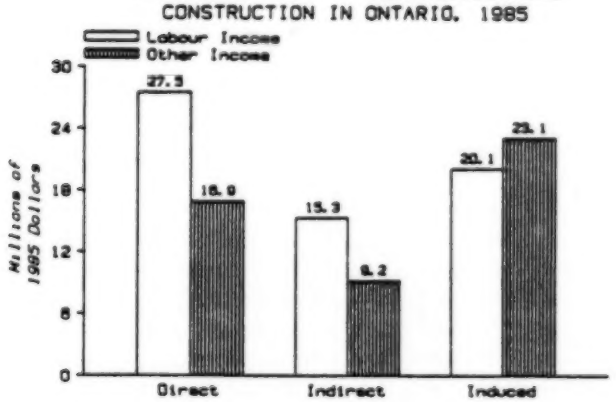
Three Rounds of Impacts for Construction Work

EMPLOYMENT IMPACTS IN ONTARIO OF $100 MILLION OF NEW RESIDENTIAL CONSTRUCTION IN ONTARIO, 1985



Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

INCOME IMPACTS IN ONTARIO OF $100 MILLION OF NEW RESIDENTIAL CONSTRUCTION IN ONTARIO, 1985



Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

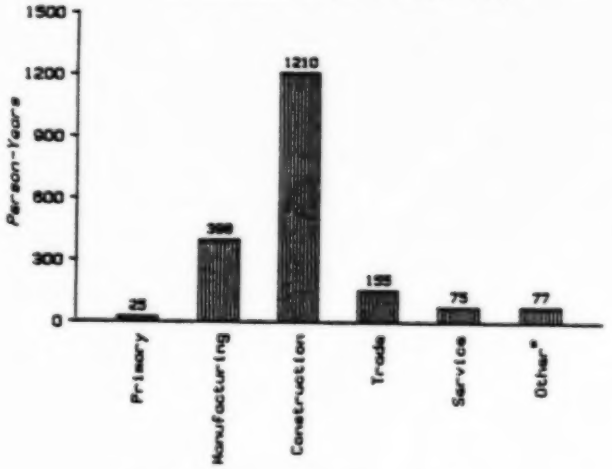
- Three distinct rounds of impacts can be identified for any economic activity. For construction work they are: direct impacts - the actual jobs and income resulting from work on a construction project; indirect impacts - the jobs and income created in other industries required to produce materials and other inputs for the construction work; and induced impacts - the jobs and income created in the economy from the spending of incomes generated in the first two rounds.

- For an expenditure of $100 million on new residential construction in Ontario in 1985, it is estimated that about 3,000 person-years of employment are generated in the province. Direct construction work accounts for about 1,200 jobs while over 700 jobs are created in industries supplying inputs to construction. Induced employment accounts for slightly more than one-third of the employment generated.

- The three rounds generate $112 million of income in Ontario. More than half of this is labour income, the remainder is indirect taxes and business and investment income.

Expenditures on Construction Affect All Sectors of the Economy

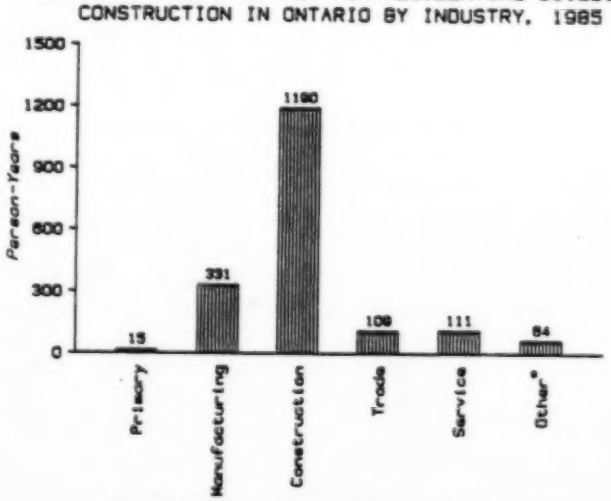
DIRECT AND INDIRECT EMPLOYMENT IMPACTS IN ONTARIO OF $100 MILLION OF NEW RESIDENTIAL CONSTRUCTION IN ONTARIO BY INDUSTRY, 1985



* *Includes transportation, storage, communication, utilities, financial, insurance and real estate industries.*

Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

DIRECT AND INDIRECT EMPLOYMENT IMPACTS IN ONTARIO OF $100 MILLION OF NEW NON-RESIDENTIAL BUILDING CONSTRUCTION IN ONTARIO BY INDUSTRY, 1985



* *Includes transportation, storage, communication, utilities, financial, insurance and real estate industries.*

Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

- All sectors of the economy are affected by construction expenditures. The sector where most of the jobs are created is, of course, construction; however, a significant number of jobs are created in other sectors as well.

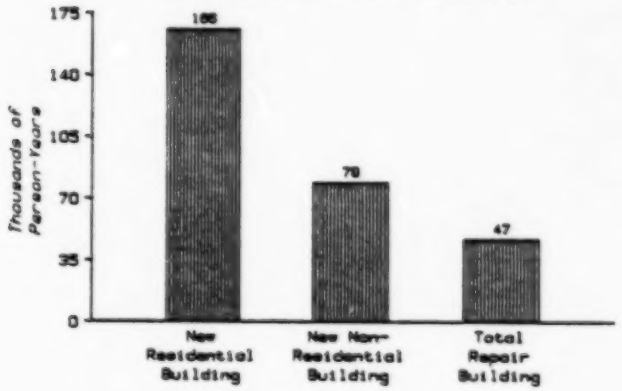
- The analysis here concentrates on the direct and indirect jobs created. Induced jobs, while relatively large in number, are no different for a given amount of income generated by construction than for the same amount of income generated by any other activity.

- For $100 million of new residential construction spending in Ontario, about 1,200 direct and indirect person-years of employment are generated in the construction industry - almost all in the direct round. About 400 person-years of employment are created in manufacturing and significant employment is generated in the trade and service sectors as well.

- An equivalent expenditure on new non-residential building construction generates almost the same number of direct jobs as new residential construction. Spending on non-residential building also has a similar wide distribution of impacts to other sectors of the economy.

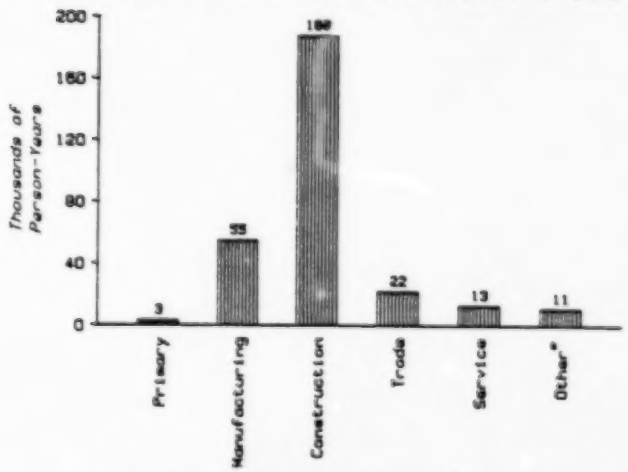
Building Construction in Ontario Generated Almost 300,000 Direct and Indirect Jobs in the Province in 1985

ESTIMATED DIRECT AND INDIRECT EMPLOYMENT IMPACTS IN ONTARIO OF ACTUAL BUILDING CONSTRUCTION EXPENDITURES IN ONTARIO, 1985



Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

ESTIMATED DIRECT AND INDIRECT EMPLOYMENT IMPACTS IN ONTARIO OF ACTUAL BUILDING CONSTRUCTION EXPENDITURES IN ONTARIO BY INDUSTRY, 1985



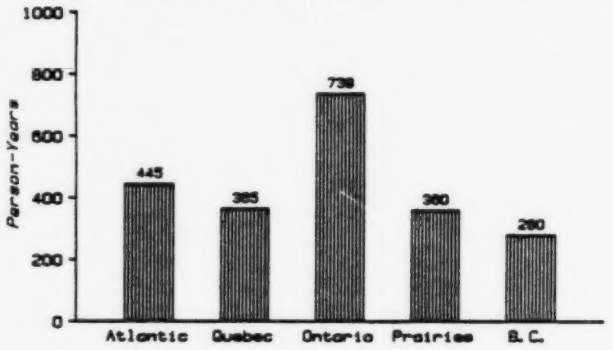
* *Includes transportation, storage, communication, utilities, financial, insurance and real estate industries.*

Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

- The $15.2 billion of building construction expenditures in Ontario in 1985 is estimated to have generated about 292,000 direct and indirect person-years of employment in the province. These jobs represent almost 7 percent of Ontario's total employment in 1985.
- Spending on new residential construction had the greatest impact; it generated an estimated 166,000 person-years of employment.
- The income generated from the 292,000 person-years of direct and indirect employment would create a further 164,000 induced jobs in Ontario.
- Most direct and indirect jobs are created in the construction sector, however, a large number of jobs are also created in other industries. The 55,000 person-years of employment generated in the manufacturing sector represent over 5 percent of all manufacturing employment in Ontario in 1985.
- These estimates are based on the Statistics Canada 1979 interregional input-output model. The results of the model were updated to 1985 utilizing construction price indexes; however, the estimates do not allow for any changes in inputs to construction (or the jobs needed to create them) since 1979.

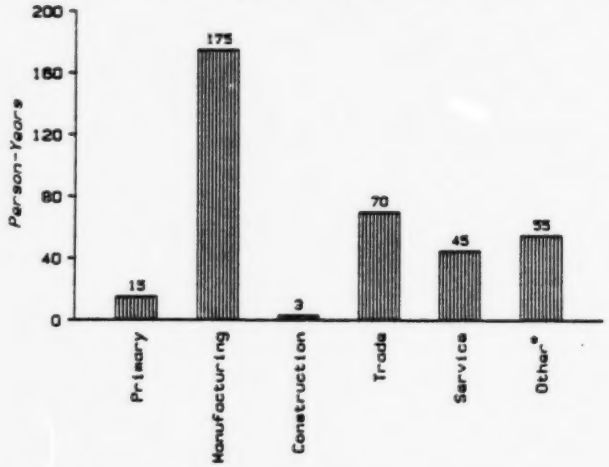
Construction in Other Provinces Generates Jobs in Ontario as Well

ESTIMATED INDIRECT EMPLOYMENT IMPACTS IN ONTARIO OF $100 MILLION OF NEW RESIDENTIAL CONSTRUCTION IN EACH REGION, 1985



Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

INDIRECT EMPLOYMENT IMPACTS IN ONTARIO OF $100 MILLION OF NEW RESIDENTIAL CONSTRUCTION IN QUEBEC, 1985



* *Includes transportation, storage, communication, utilities, financial, insurance and real estate industries.*

Source: Clayton Research Associates based on Statistics Canada input-output tabulations.

- Ontario industry produces inputs for construction in all parts of Canada. Therefore, construction spending in other regions also has an impact on employment in Ontario.

- It is estimated that $100 million of new residential construction expenditures in Ontario in 1985 created over 700 person-years of indirect employment in the province. Similar expenditures in other regions create an estimated 280-450 person-years of indirect employment in the province of Ontario.

- Construction spending in the Atlantic region has the largest indirect impact in Ontario (per dollar of spending). For $100 million of spending on residential construction in Atlantic Canada, about 450 person-years of indirect employment are generated in Ontario.

- The impacts of new non-residential construction expenditures in other regions are similar to those for new residential construction.

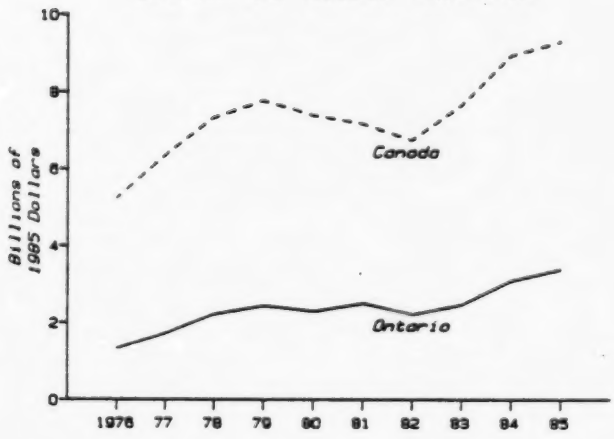
- Employment impacts in Ontario resulting from construction spending in other regions occur largely in the manufacturing sector. Using spending on new residential construction in Quebec as an example, it is clear that trade and services are also large beneficiaries.

EXPORTS AND IMPORTS OF BUILDING PRODUCTS

This section presents information on domestic exports and imports of building products from Canada and Ontario. Domestic exports refer to exports sourced in Canada - as opposed to re-exports of goods made elsewhere. Ontario's imports and exports refer to trade with other countries, not with other parts of Canada.

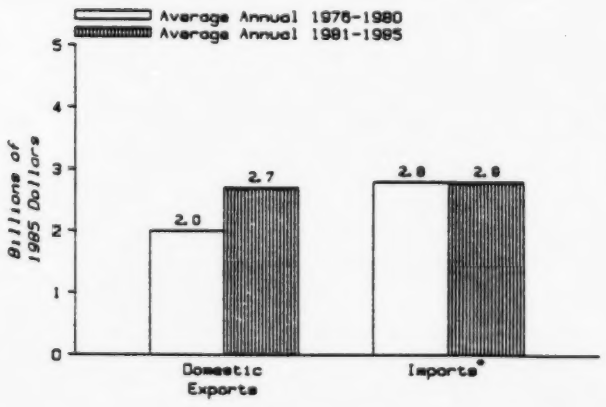
Increasing Exports of Building Products from Ontario

REAL VALUE OF DOMESTIC EXPORTS
OF BUILDING PRODUCTS
ONTARIO AND CANADA, 1976-1985



Source: Clayton Research Associates based on Statistics Canada data.

REAL VALUE OF EXPORTS AND IMPORTS OF
BUILDING PRODUCTS, ONTARIO, 1976-1985

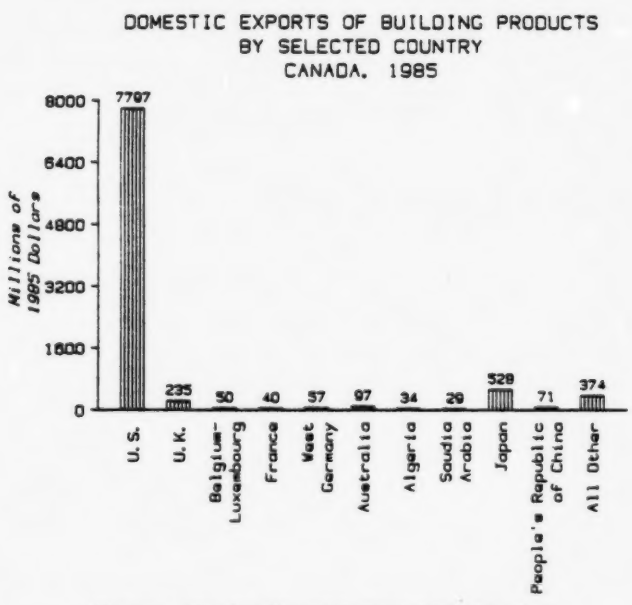


* *Imports by province of clearance.*

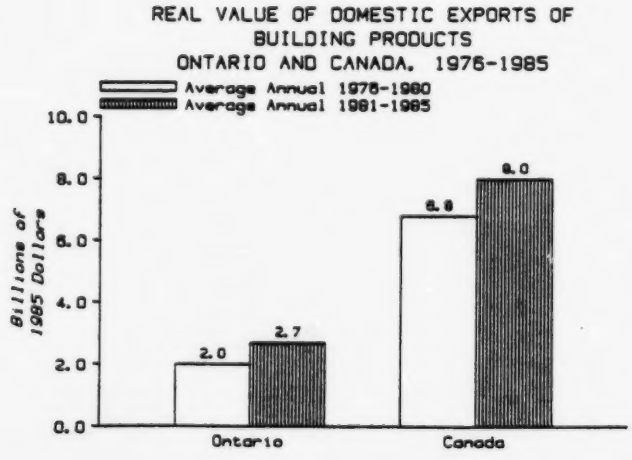
Source: Clayton Research Associates based on Statistics Canada data.

- Ontario's building product exports are increasing in real terms and as a share of Canada's building product exports. In 1985, Ontario exports totalled $3.4 billion, 70 percent above the 1976-1980 annual average (in 1985 dollars).
- Goods exported by Ontario accounted for 34 percent of Canada's building product exports in 1981-1985 - higher than the 29 percent share in 1976-1980.
- Ontario's building product trade balance was negative in the 1981-1985 period - imports exceeded exports by a small margin. This is significant improvement from the previous five-year period when there was a substantial deficit in trade in building products.
- Data on exports from Ontario refer to building products loaded in the province for export; however, some transshipments of products from other provinces are included. Data on imports are available only by province of clearance, i.e., products which clear customs in Ontario regardless of the final destination.

United States - The Main Market for Exports of Ontario Building Products



Source: Clayton Research Associates based on Statistics Canada data.



Source: Clayton Research Associates based on Statistics Canada data.

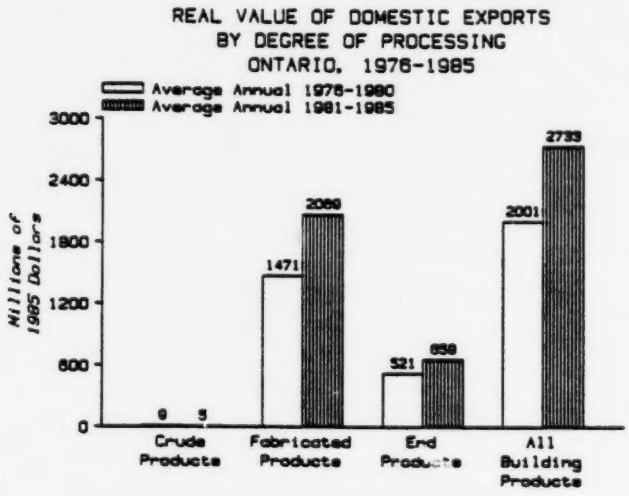
- The U.S. is by far the most important export market for building products from both Ontario and Canada. In 1985, exports of Canadian building products to the U.S. totalled $7.8 billion. No other country's imports of Canadian building products was higher than half a billion dollars.

- Ontario's building product exports in 1985 totalled $3.4 billion, about 37 percent of Canada's total exports of building products.

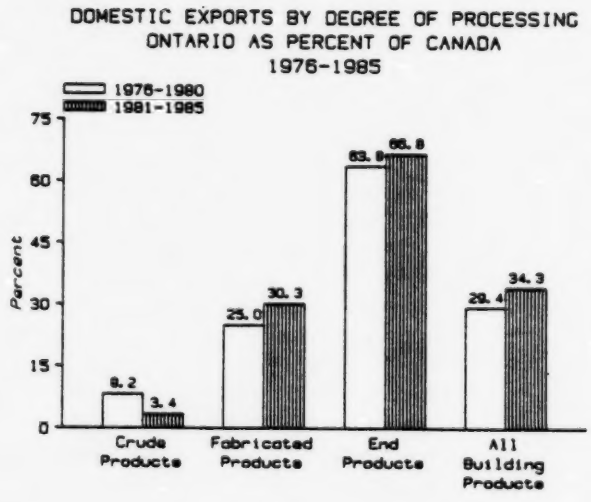
- The value of Ontario's exports of building products has been increasing at a much greater rate than for Canada as a whole. The real value of average annual Ontario building product exports increased by 35 percent between the 1976-1980 and 1981-1985 periods, while the real value of Canadian exports of building products increased by less than 20 percent.

- Most of the increase in Ontario's exports of building products over the past decade was in semi-finished products each as lumber and metal products though exports of finished products increased significantly also.

Most Ontario Building Product Exports are Partly Finished Products



Source: Clayton Research Associates based on Statistics Canada data.



Source: Clayton Research Associates based on Statistics Canada data.

- Exports of building products have been disaggregated into three categories: crude products - raw products or products subject to preliminary processing only (such as logs or stone); fabricated products - products which have undergone some level of processing but are not finished products (such as lumber, wire and bricks); and end products - finished goods such as furnaces, sinks and tools.

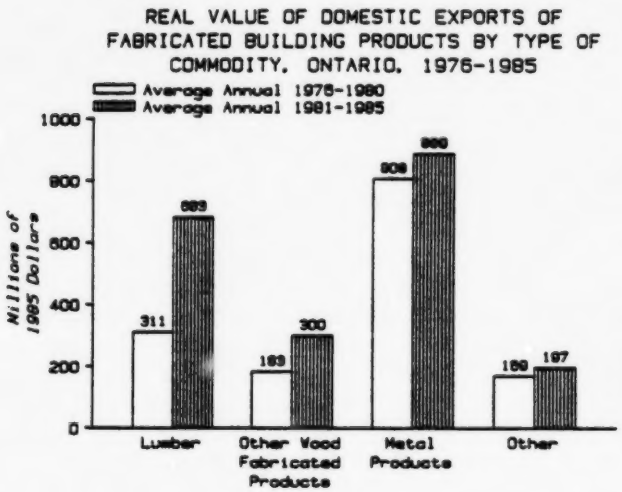
- Most of Ontario's building product exports are fabricated products. Over the 1981-1985 period, these accounted for 76 percent of the province's total building product exports.

- For Canada, the comparable share of total building product exports comprised of fabricated products was 86 percent during the last five years.

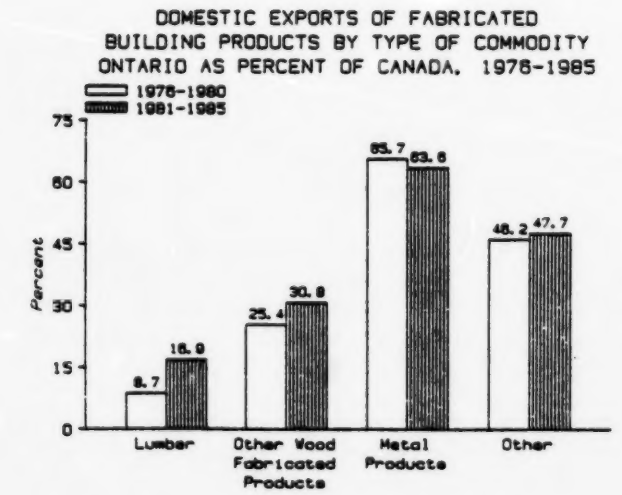
- Ontario accounts for the vast majority of Canada's end building product exports - about two-thirds in the past decade.

- For fabricated and crude building products, the Ontario share of total Canadian exports to the U.S. were 30.3 percent and 3.4 percent, respectively, for the 1981-1985 period.

Metal Products and Lumber Account for Most Ontario Fabricated Building Product Exports



Source: Clayton Research Associates based on Statistics Canada data.



Source: Clayton Research Associates based on Statistics Canada data.

- Metal products and lumber dominate Ontario's exports of fabricated building products (which accounted for 76 percent of total Ontario building products exported in the 1981-1985 period).

- Metal products, mostly iron and steel products (such as structural steel and pipes) and metal fabricated products (such as screws and valves) comprised 43 percent of total fabricated building product exports from Ontario over the past five years.

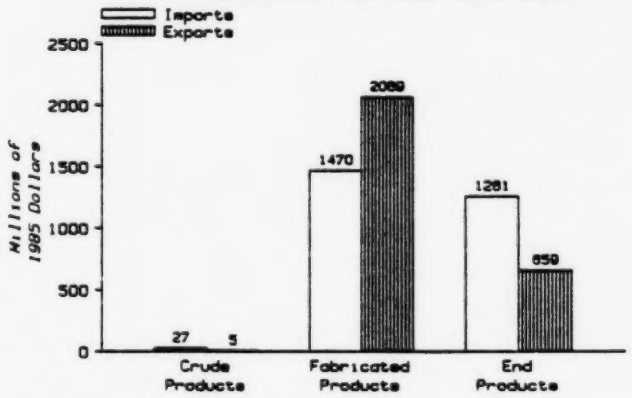
- Lumber, mainly softwood lumber, comprised one-third of total fabricated building product exports from Ontario over the 1981-1985 period.

- Ontario accounts for almost two-thirds of the metal product exports from Canada. The Ontario share of wood products is much lower due to the predominance of B.C. lumber exports. Much of the lumber exported from B.C. to the U.S. is, however, exported through Ontario border crossings and some of this shows up in the Ontario statistics.

- The "Other" category includes products such as non-metallic mineral products (e.g. cement and gypsum wallboard). Ontario accounts for almost half of total Canadian exports of these building products to the U.S.

More Finished Goods Among Imports of Building Products

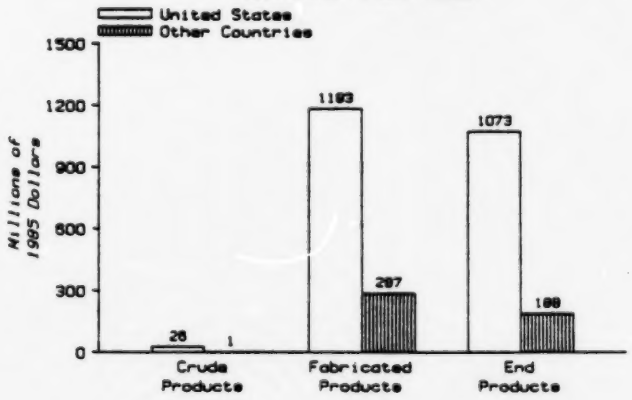
AVERAGE ANNUAL REAL VALUE OF IMPORTS AND DOMESTIC EXPORTS OF BUILDING PRODUCTS BY DEGREE OF PROCESSING, ONTARIO, 1981-1985



Source: Clayton Research Associates based on Statistics Canada data.

- Imports of building products to Ontario are much more heavily weighted towards end products than is the case with exports.
- End products comprised 46 percent of imports of building products to Ontario in 1981-1985; the comparable share for exports was 24 percent.
- Whereas exports of building products from Ontario tend to be concentrated into a few distinct products, especially metal products and lumber, imports are spread across a wide variety of products. No specific product accounts for more than 10 percent of total building product imports.

AVERAGE ANNUAL REAL VALUE OF IMPORTS OF BUILDING PRODUCTS BY DEGREE OF PROCESSING AND COUNTRY ONTARIO, 1981-1985



Source: Clayton Research Associates based on Statistics Canada data.

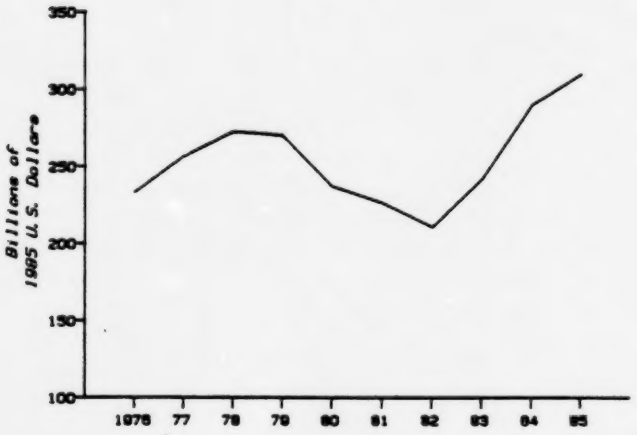
- As with exports, most imports of building products are from the U.S. Over 80 percent of total building products imported into Ontario in the past five years were from the U.S.
- U.S. products dominate most types of building product imports. However, other countries do account for a large share of imports of some products - iron and steel and clay products are examples.
- The only Ontario import data available relate to building products which clear Canadian customs through Ontario border crossings. As such, they are an imperfect representation of products destined for Ontario markets.

U.S. BUILDING INDUSTRY ACTIVITY AND EXPORTS TO THE U.S.

This section briefly reviews trends in building construction in the largest Canadian building product export market - the United States.

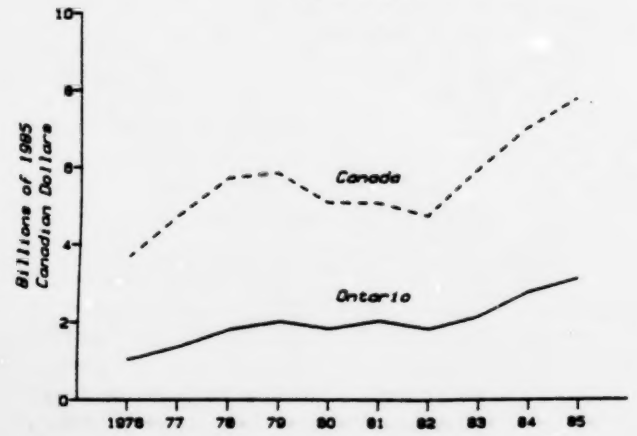
Exports Mirror Trends in U.S. Building Construction

REAL BUILDING CONSTRUCTION EXPENDITURES
UNITED STATES, 1976-1985



Source: Clayton Research Associates based on data from U.S. Department of Commerce, Bureau of the Census.

REAL EXPORTS OF BUILDING PRODUCTS
FROM ONTARIO AND CANADA TO THE UNITED STATES
1976-1985

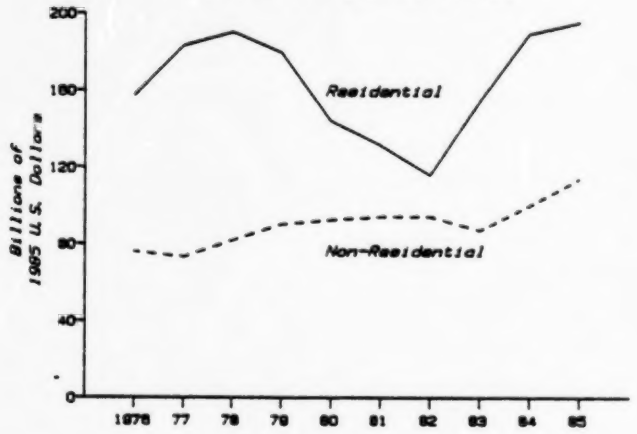


Source: Clayton Research Associates based on Statistics Canada data.

- Expenditures on building construction in the U.S. in 1985 were at their highest level in over a decade.
- A total of $310 billion (U.S.) was spent on building construction in the U.S. last year, well above the average annual levels of real 1985 dollar expenditures in both 1976-1980 ($254 billion) and 1981-1985 ($255 billion).
- The upturn in U.S. building construction activity is reflected in the growth of exports of building products to the U.S. from both Ontario and other parts of Canada.
- Despite the recent rise in Canadian exports of building products to the U.S., the value of these exports in 1985 ($7.8 billion in Canadian dollars) still accounted for less than 2 percent of total U.S. building construction expenditures in that year.
- Ontario's building product exports to the U.S. in 1985 totalled $3.1 billion - slightly more than 0.5 percent of U.S. building expenditures.

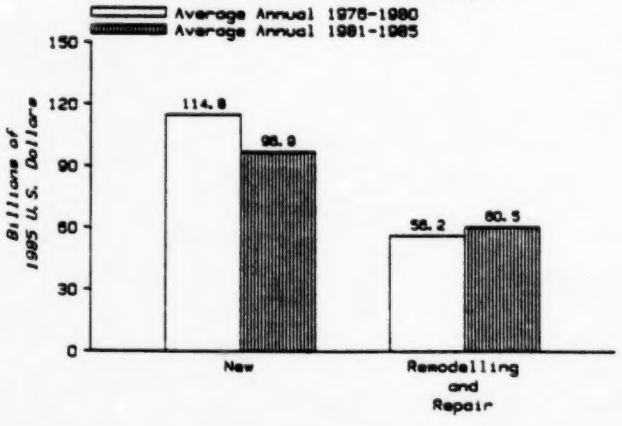
Both Residential and Non-Residential Building Have Increased Substantially in 1984 and 1985

REAL BUILDING CONSTRUCTION EXPENDITURES
BY TYPE OF WORK
UNITED STATES, 1976-1985



Source: *Clayton Research Associates based on data from U.S. Department of Commerce, Bureau of the Census.*

REAL RESIDENTIAL CONSTRUCTION EXPENDITURES
ON NEW AND REMODELLING AND REPAIR WORK
UNITED STATES, 1976-1985



Source: *Clayton Research Associates based on data from U.S. Department of Commerce, Bureau of the Census.*

- While increased spending on residential construction has provided the main impetus to the higher real expenditures on building construction in the U.S., spending on non-residential building construction has increased as well.

- Residential construction expenditures in the U.S. in 1985 totalled $196 billion (U.S.), well above the annual averages of $171 billion (1985 dollars) for 1976-1980 and $157 billion in 1981-1985. Real (1985 dollar) residential construction expenditures dropped to only $116 billion in 1982.

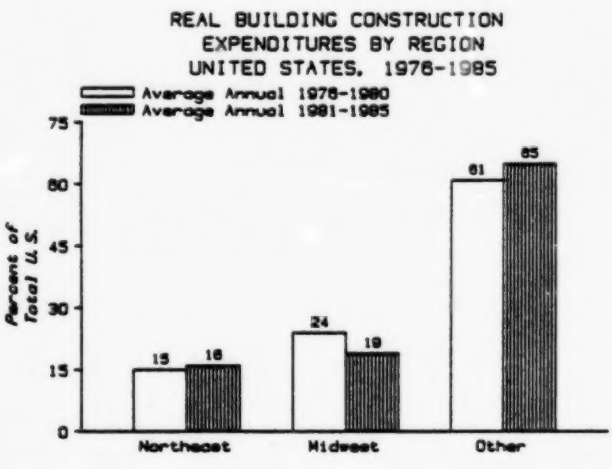
- In contrast, the rise in non-residential building construction expenditures has been much less volatile.* Non-residential building expenditures in 1985 totalled $114 billion (U.S.); this compares to average annual 1985 dollar expenditures of $83 billion in 1976-1980 and $98 billion for the 1981-1985 period as a whole.

- As in Canada, spending on remodelling and repairs in the U.S. is accounting for an increasing share of residential building while spending on new construction declined in real terms in 1981-1985.

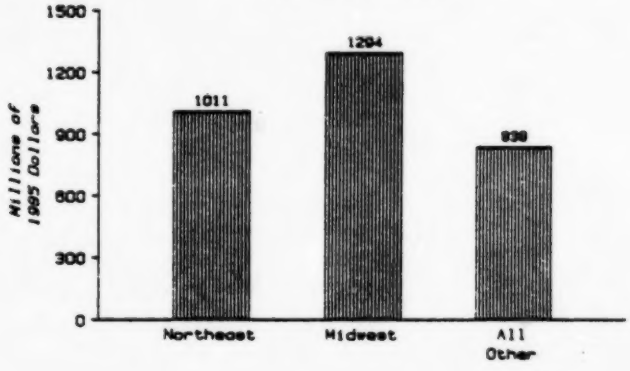
---

* U.S. data do not include estimates of expenditures on repairs to non-residential buildings.

Most Ontario Building Product Exports to the U.S. Go to Midwest and Northeast Regions



Source: Clayton Research Associates based on data from Regis J. Sheehan and Associates.



Source: Clayton Research Associates based on Statistics Canada data.

- The main U.S. markets for Ontario building product exports are the states comprising the Northeast and Midwest regions.
- These two regions combined accounted for an estimated 35 percent of all building construction spending in the U.S. in the 1981-1985 period.
- On an average annual basis, the share of U.S. real building construction spending occurring in the Northeast region increased slightly in the past five years (compared to 1976-1980) but declined in the Midwest region over the same period.
- The Northeast and Midwest regions combined accounted for almost three-quarters of the estimated 1985 building product exports to the U.S. from Ontario.
- The Midwest region, particularly the states of Michigan, Ohio, Illinois, Indiana and Wisconsin, was the largest market for Ontario building product exports to the U.S.